IBM Platform HPC for System x , V3.2 delivers faster time to cluster readiness, improved productivity, and shorter time to solution

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At a glance

Easy-to-use, comprehensive technical computing management software

- Reduces time to cluster readiness with easy-to-use cluster management capability
- Increases user and administrator productivity with an intuitive web-based interface including simplified application integration
- Improves resource utilization and reduces infrastructure cost with infrastructure-aware job scheduling
- Accelerates time to results with robust workload management capabilities and advanced MPI libraries

Overview

Easy-to-use, comprehensive management software for technical computing clusters

IBM® Platform HPC is easy-to-use, yet comprehensive technical computing management software. Its robust cluster and workload management capabilities are accessible using the latest design in web-based interfaces - making it powerful, yet easy to use. Platform HPC simplifies the application integration process so that users can focus on their work, instead of managing a cluster. For applications requiring MPI, the robust commercial MPI library accelerates and scales HPC applications for shorter time to solution.

Other HPC cluster solutions just combine multiple tools and interfaces, which are not integrated, certified, or tested together. Platform HPC is a single product with a unified set of management capabilities that make it easy to harness the power and scalability of a technical computing cluster, resulting in shorter time to system readiness and user productivity as well as optimal throughput. Backed by the industry's best customer support, Platform HPC incorporates nearly two decades of product and technology leadership.

IBM Platform HPC delivers the following key benefits:

- Faster time to cluster readiness
- Reduced infrastructure and management costs
- Optimal resource utilization
- Improved user and administrator productivity

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- Shorter time to results

Key prerequisites

Key prerequisites to run IBM Platform HPC include:

- A cluster computing environment comprised of two or more servers.
- A head node that has at least two network interfaces. One connects to a public or corporate network. The other one is connected privately to all the other nodes.
- A supported operating system pre-installed on the head node.
- Access to the OS media or image file used for installation of the operating system on all nodes in the cluster.

Non-head nodes can be set to PXE boot.

See the Hardware requirements and Software requirements sections for additional information.

Planned availability date

July 27, 2012

Availability of programs with an encryption algorithm in France is subject to French government approval.

Description

Introduction to the IBM Platform: Easy-to-use, comprehensive management software for technical computing

IBM Platform HPC is easy-to-use, yet comprehensive technical computing management software. Its robust cluster and workload management capabilities are accessible using the latest design in web-based interfaces - making it powerful, yet easy to use. Platform HPC simplifies the application integration process so that users can focus on their work, instead of managing a cluster. For applications requiring MPI, the robust commercial MPI library accelerates and scales HPC applications for shorter time to solution.

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IBM Platform HPC delivers the following key benefits:

- Faster time to cluster readiness
- Reduced infrastructure and management costs
- Optimal resource utilization
- Improved user and administrator productivity
- Shorter time to results

Features and benefits

- Comprehensive, easy-to-use cluster management product: Takes the complexity out of setting up, managing, and monitoring a heterogeneous cluster

environment, ensuring that technical computing environments are quickly up and running
- Next-generation, easy-to-use interface: Powerful web-based user interface with an intuitive design that is easy for both users and administrators to utilize
- Integrated application support: Simplifies application integration and enables users to leverage the cluster transparently to accelerate their application workload
- User-friendly, topology-aware workload management: Is based on Platform LSF® , the industry's powerful policy-driven workload manager, for improved productivity, utilization, and throughput with minimal administrative effort
- Robust workload and system monitoring and reporting: Enables you to make timely decisions and proactively manage compute resources against business demand - maximizing uptime, optimizing application performance, and improving user productivity
- Dynamic operating system multi-boot: Improves resource utilization and user productivity by decreasing lag time between jobs
- GPU scheduling, management, and monitoring: Makes it easy to take immediate advantage of the exceptional HPC performance provided by GPUs
- Robust commercial MPI library (Platform MPI): Accelerates and scales HPC applications, for shorter time to solution

IBM Platform HPC runs on a variety of hardware and operating environments, including the latest generation of System x® servers. By pre-qualifying and certifying Platform HPC on these systems, IBM helps you take the risk out of deploying mission-critical high performance technical computing deployments.

IBM Platform HPC unique propositions

Easy-to-use, comprehensive technical computing management solution: IBM Platform HPC makes it easy to deploy, manage, and use a technical computing cluster while meeting the most demanding requirements for application performance and predictable workload management. It is a complete product that provides a robust set of cluster management capabilities, from cluster provisioning and management to workload management and monitoring. All the functions required to operate and use a cluster are installed at once and are tightly integrated. The next-generation web portal provides a single point of access into your cluster, making it easy to manage jobs and optimize application performance. This is more than just a stack of software; IBM Platform HPC is a fully integrated and certified product designed to ensure faster time to system readiness, ease of use, and improved application throughput.

Integrated application support: IBM Platform HPC enables users to fully harness the power of a technical computing cluster to optimize application performance. High-performing, HPC-optimized MPI libraries come integrated with the product, making it easy to get parallel applications up and running. Scripting guidelines and job submission templates for commonly used commercial applications enable easy application integration and ensure that users are immediately productive - simplifying job submission, reducing job setup time, and minimizing operation errors. Once the applications are up and running, Platform HPC improves application performance by intelligently scheduling resources based on workload characteristics.

IBM Platform HPC product capabilities

Web-based interface - Easily manage a cluster and submit, monitor, and manage jobs: A single, unified web-based interface with advanced capabilities makes it easy to manage all aspects of a technical computing cluster. This includes cluster provisioning, monitoring, application integration, and workload management and reporting. The intuitive interface provides a robust set of management dashboards and reports that make it easy to monitor resource performance and alerts to ensure that the technical computing infrastructure is optimally utilized.

Cluster management - A better way to deploy and manage technical computing clusters: IBM Platform HPC enables users to quickly provision and manage clusters

with unprecedented ease. It ensures maximum uptime and can transparently synchronize files to cluster nodes without any downtime or re-installation.

Workload management - Increase application performance and resource utilization: IBM Platform HPC includes a robust workload scheduling engine, which is based on IBM Platform LSF - a proven, powerful, comprehensive, policy-driven workload management solution for engineering and scientific distributed computing environments. By scheduling workloads intelligently according to policy, Platform HPC improves end-user productivity with minimal system administrative effort. In addition, it allows user teams to easily access and share all computing resources, while reducing time between simulation iterations.

Workload and system monitoring and reporting - Easy troubleshooting and capacity planning: IBM Platform HPC includes an operational dashboard that provides comprehensive administrative reports. It enables administrators to make timely decisions and proactively manage compute resources against business demand. By correlating workload information with system load, they can easily identify and troubleshoot issues. When it's time for capacity planning, the unified web portal can be used to run detailed reports and analyses which quantify user needs and remove the guesswork from capacity expansion.

Dynamic OS multi-boot - Automated operating system selection based on workload: IBM Platform HPC includes the flexibility to support multiple operating system versions concurrently on the same resource. Linux™ and Windows™ operating systems can be dynamically booted based on the job requirement and application profile. The product's interface can also be used to manually switch nodes to the required OS to meet application demands, which provides the flexibility to support special requests and accommodate unanticipated changes.

GPU support - Take advantage of high-performing GPUs: IBM Platform HPC provides the capability to schedule GPU-enabled applications specifically to resources with GPUs. This provides a distinct advantage in heterogeneous hardware and application environments as it means that administrators can configure Platform HPC so that only jobs that can benefit from running on GPUs are allocated to those resources. This frees up CPU-based resources to run other jobs. Using the unified management interface, administrators can also monitor the GPU utilization, temperature, and status as well as detect ECC error accumulation.

MPI library - Accelerates and scales HPC applications, for shorter time to solution: In order to make it easier to get parallel applications up and running, IBM Platform HPC includes a robust and high-performing MPI implementation - IBM Platform MPI. Platform MPI provides consistent performance at application run-time and for application scaling, resulting in top performance results across a range of third-party benchmarks.

Application support - Easy application integration, minimal job submission errors: IBM Platform HPC comes complete with job submission templates for common commercial ISV applications as well as configurable templates for home-grown applications. By configuring these templates based on the application settings in your environment, users can run jobs without writing scripts. These self-documenting, user-friendly interfaces help minimize job submission errors. IBM Platform HPC also includes the Intel™ Cluster Ready Cluster Checker to ensure that the cluster will deliver the best performance for MPI applications.

Third-party software integration - Easily customize based on an organization's unique needs: IBM Platform HPC provides the capability to customize the metrics you monitor, including integrating with third-party management software such as Intel Cluster Checker, and QLogic Fabric Manager. This enables administrators to monitor and alert abnormal status for non-server devices in the HPC environment. Custom actions and buttons can be added to the web-based interface, which can trigger a link to a URL or a command launched on the head node. These customizations enable administrators to create an environment that is tailored specifically to their organization's unique requirements.

Fully certified and supported by IBM Platform Computing: Unlike other cluster toolkits which are often collections of open-source software, IBM Platform HPC

is a single product with a single installer and a unified web-based management interface. It is based on the industry's well-recognized, mature, and robust workload manager, IBM Platform LSF , making it a robust and reliable product. Platform HPC unlocks cluster management to provide easy-to-use, comprehensive and robust HPC management capabilities while reducing overall cluster cost with full support and certification from Platform Computing, the world leader in HPC management solutions.

Accessibility by people with disabilities

A US Section 508 Voluntary Product Accessibility Template (VPAT) containing details on accessibility compliance can be requested at

http://www.ibm.com/able/product_accessibility/index.html

Product positioning

IBM Platform product portfolio

IBM Platform HPC is part of the Systems Software product portfolio and is specifically targeted at technical computing clients. IBM Platform HPC may be integrated with a variety of HPC product portfolios and services available from IBM , including:

- Several of the IBM Platform LSF family of products are available as add-ons for Platform HPC, further extending its robust capabilities. This includes IBM Platform Application Center - Standard Edition, IBM Platform RTM, and IBM Platform License Scheduler. Other LSF family add-on products require IBM Platform LSF - Standard Edition which is available as an upgrade from IBM Platform HPC. Upgrading to Platform LSF - Standard Edition enables clients to manage workload across multiple Platform HPC clusters via a single job submission and management interface.
- For clients with diverse workload scheduling requirements, Platform HPC may be sold in conjunction with IBM Platform Symphony™ and associated add-on products. Both Platform HPC and Platform Symphony share a common resource management layer and can share resources on the same physical cluster.
- Designed as a turn-key, comprehensive HPC management software solution, IBM Platform HPC is an integral part of the IBM Intelligent Cluster™ portfolio. The integrated solution brings simplified cluster deployment, ease of use, greater performance, and improved productivity to HPC clients.
- Clusters comprised of IBM System x servers in either blade or rack form factor are also a good fit for IBM Platform HPC. Platform HPC is certified to run on the M4 generation of System x servers including the most recent iDataPlex® release.
- For clients running applications that benefit from a distributed parallel file system, IBM GPFS™ may be deployed together with Platform HPC, providing improved file system performance for data-intensive applications.
- Depending on the nature of the client requirement, Platform HPC deployments often involve software development and integration services. With its breadth of services capabilities, IBM is uniquely positioned to help you integrate applications and be up and running quickly to get maximum value from your technical computing investment.

Competitive offerings

IBM Platform HPC competes with the following:

- Windows HPC Server from Microsoft™
- Altair GridWorks for Altair Engineering
- Bright Cluster Manager from Bright Computing
- Grid Engine (Oracle Grid Engine, open source or Univa)
- MOAB Cluster Suite from Adaptive Computing

- Various open source products

Relative to these other workload management offerings, however, Platform HPC delivers the following unique advantages:

1. IBM Platform HPC is a complete solution that is installed through a single installer for simplified cluster configuration. This ensures that all the HPC cluster components are pre-certified to work together, eliminating integration configuration and complexity.
2. Platform HPC can be installed and pre-certified by leading hardware vendors or it can be installed on your existing servers. This provides the flexibility to use new hardware or repurposed existing hardware.
3. The workload management capability included in Platform HPC is based on the industry's proven, powerful workload scheduler, IBM Platform LSF , which has been deployed in many large data centers. This enables you to access the full performance and scalability of a technical computing cluster.
4. Platform HPC includes a browser-based portal for users to submit jobs and access job-related data. The portal includes application scripts for popular technical applications, which reduce the job submission learning experience for users.
5. The industry's highest-performing MPI library, IBM Platform MPI, is an integral part of IBM Platform HPC, ensuring high performance and robustness for MPI-based applications.
6. Platform HPC includes an easy-to-use administration portal for administration of the HPC cluster.
7. Commercial support from Platform HPC comes with the product, providing one-stop support from technical computing experts.

Product number

Software options

Part number	Description
44X2531	IBM Platform HPC for System x V3.2 Per Managed Server with 1 Year SW S&S
44X2532	IBM Platform HPC for System x V3.2 Per Managed Server with 3 Year SW S&S
44X2533	IBM Platform HPC for System x V3.2 Per Managed Server with 5 Year SW S&S

Managed Server

Managed Server is a unit of measure by which the program can be licensed. A server is a physical computer that is comprised of processing units, memory, and input/output capabilities and that executes requested procedures, commands, or applications for one or more users or client devices. Where racks, blade enclosures, or other similar equipment is being employed, each separable physical device (for example, a blade or a rack-mounted device) that has the required components is considered itself a separate server.

Licensee must obtain entitlements for each server running the program and for each server being managed by the program.

Order handling

To allow for ease of order submission, the offerings in this announcement can be configured in conjunction with eligible System x hardware, software, and license-

only configurations that can be created for this product based on existing supported System x hardware system units in a given business environment.

Licenses for offerings in this announcement include one year or three years of Software Subscription and Support. Software Subscription and Support renewals for all features are aligned through Passport Advantage® Express® or Passport Advantage , reducing the administrative burden of keeping your Subscription and Support up to date.

If a new release of a given offering in this announcement is made generally available in Passport Advantage after the announcement of the offering in System x ordering systems, you may elect to take delivery of any release generally available for that offering during the product registration process.

Eligible software products, offered and selected during the ordering process with each hardware system, are enabled for electronic download for the system unit for which the product was ordered. Optionally, software and license-only orders can be created for these products based on existing supported hardware system units in the business environment. Offerings included in this announcement are available exclusively by electronic download.

Orders placed for the eligible offerings in this announcement will be routed and fulfilled through Passport Advantage Express . Invoicing for the initial license orders will occur through the System x order management systems. Subscription and Support renewals will be managed through Passport Advantage .

Passport Advantage allows you to have a common anniversary date for Software Subscription and Support renewals. The anniversary date, established at the order ship date for the initial product acquisition, will remain unchanged while your Passport Advantage Agreement remains in effect. New software purchases initially include 12 or 36 full months of Subscription and Support coverage. Subscription and Support in the second year (the first year of renewal) can be prorated to be coterminous with your common anniversary date but managed and invoiced through Passport Advantage . Thereafter, all Software Subscription and Support will renew at the common anniversary date and include 12 full months of Subscription and Support.

Education support

The following classes are available:

Course code	Course title	Course type
H080G	IBM Platform HPC 3.x	Classroom
H180G	IBM Platform HPC 3.x	ILO*
H285G	IBM Platform HPC	Web based

*ILO - Instructor-Led Online

IBM training provides education to support many IBM offerings. Descriptions of courses for IT professionals and managers are on the IBM training website

http://www.ibm.com/services/learning/

Contact your IBM representative for course information.

Publications

The following technical documents are available for the IBM Platform HPC:

- Installing and Managing the IBM Platform HPC Web Portal Kit
- Installing and Managing the NVIDIA CUDA Kit

- Installing and Managing the IBM Platform Cluster Manager Base Kit
- Installing and Managing the OS OFED Kit
- Installing and Managing the IBM Platform Cluster Manager Kit
- Installing and Managing the IBM Platform Dynamic Multiboot Kit
- Installing and Managing the IBM Platform HPC GPU Scheduling Kit
- Installing and Managing the IBM Platform MPI Kit
- Web Portal Customization Guide
- Kit Builder Guide
- Getting Started with IBM Platform HPC (Administrators)
- Administering IBM Platform HPC
- Installing IBM Platform HPC
- Release Notes for IBM Platform HPC 3.2

No hardcopy publications are shipped with this program.

IBM Publications Center

http://www.ibm.com/shop/publications/order

The Publications Center is a worldwide central repository for IBM product publications and marketing material with a catalog of 70,000 items. Extensive search facilities are provided. Payment options for orders are via credit card (in the US) or customer number for 20 countries. A large number of publications are available online in various file formats, and they can all be downloaded by all countries, free of charge.

Services

Global Technology Services

IBM services include business consulting, outsourcing, hosting services, applications, and other technology management.

These services help you learn about, plan, install, manage, or optimize your IT infrastructure to be an on-demand business. They can help you integrate your high-speed networks, storage systems, application servers, wireless protocols, and an array of platforms, middleware, and communications software for IBM and many non-IBM offerings. IBM is your one-stop shop for IT support needs.

For details on available services, contact your IBM representative or visit

http://www.ibm.com/services/

For details on available IBM Business Continuity and Recovery Services, contact your IBM representative or visit

http://www.ibm.com/services/continuity

For details on education offerings related to specific products, visit

http://www.ibm.com/services/learning/index.html

Select your country, and then select the product as the category.

Technical information

Specified operating environment

Operating environment

IBM Platform HPC is part of the IBM Systems Software product portfolio and is specifically developed for managing a technical computing cluster. Platform HPC may be integrated with a variety of HPC product portfolios and services available from IBM including:

- Several of the IBM Platform LSF family of products are available as add-ons for Platform HPC, further extending its robust capabilities. This includes IBM Platform Application Center - Standard Edition, IBM Platform RTM, and IBM Platform License Scheduler. Other LSF family add-on products require IBM Platform LSF - Standard Edition, which is available as an upgrade from IBM Platform HPC. Upgrading to Platform LSF - Standard Edition enables you to manage workload across multiple Platform HPC clusters via a single job submission and management interface.
- For clients with diverse workload scheduling requirements, Platform HPC may be purchased in conjunction with IBM Platform Symphony and associated add-on products. Both Platform HPC and Platform Symphony share a common resource management layer and can share resources on the same physical cluster.
- Designed as a turn-key, comprehensive management software solution, Platform HPC is an integral part of the IBM Intelligent Cluster offering. The integrated solution brings simplified cluster deployment, ease of use, greater performance, and improved productivity to technical computing users.
- Clusters comprised of IBM System x servers in either blade or rack form factor are also a good fit for IBM Platform HPC. Platform HPC is certified to run on the M4 generation of System x servers including the most recent iDataPlex release.
- For clients running applications that benefit from a distributed parallel file system, IBM GPFS may be deployed together with Platform HPC, providing improved file system performance for data-intensive applications.
- Depending on the nature of the customer requirement, Platform HPC deployments often involve software development and integration services. With its breadth of services capabilities, IBM is uniquely positioned to help you integrate applications and be up and running quickly to get maximum value from your technical computing investment.

Hardware requirements

IBM Platform HPC requires the following hardware:

- Minimum requirements for installer node/head node
  - 2 GB of physical memory (RAM) for installer node/head node
  - 80 GB free disk space
  - Two Ethernet interfaces: one connects to a corporate/public network and one (provision) connects to all compute nodes
  - DVD drive
- Minimum requirements for compute node for package-based installation
  - 1 GB of physical memory (RAM) for compute node
  - 40 GB free disk space
  - One Ethernet interface
- Minimum requirements for image-based installation
  - 3 GB of physical memory (RAM)
  - 40 GB free disk space
  - One Ethernet interface
- Minimum requirements for diskless installation

  - 4 GB of physical memory (RAM)
  - One Ethernet interface
- Minimum requirements for compute node without using Platform HPC provisioning
  - 512 MB of physical memory (RAM)
  - 10 GB of free disk space
  - One Ethernet interface

Software requirements

The operating systems requirement is as follows:

- Red Hat Enterprise Linux 6.2 x86 64 bit
- Red Hat Enterprise 5.7 x86 64 bit (non-head node)
- CentOS 6.2 x86 64 bit (non-head node)

Compatibility

IBM Platform HPC 3.2 is fully compatible with other Platform HPC 3.x versions.

IBM System x and BladeCenter® servers are listed on the IBM ServerProven® website

http://www-03.ibm.com/servers/eserver/serverproven/compat/us/

Planning information

Customer responsibilities

The client must provide at least the minimum hardware and software environments in which the IBM Platform HPC will operate. It is recommended that the client assign a systems administrator who has responsibility for planning, installing, maintaining, and administering Platform HPC.

While the installation procedures for Platform HPC are easy and fast, and have been tested carefully, as with any installation, it is prudent to ensure that backups exist and prepare for the installation in advance.

Cable orders

Not applicable

Installability

IBM Platform HPC 3.2 requires the head node to have a fresh install of Red Hat Enterprise Linux 6.2 x86 64 bit in basic server mode.

Packaging

For software products in this announcement, physical media and hardcopy documentation are not included in the deliverable package. The software code is delivered only via electronic download.

After receipt of an order, the Business Partner or client will be required to register and accept Passport Advantage or Passport Express terms and conditions. Upon registration, the end customer will be provided with a website for the electronic download. The product includes the license and one year or three years of Software Subscription and Support.

Your Proof of Entitlement for these programs is a copy of a paid sales receipt, purchase order, invoice, or other sales record from IBM or its authorized reseller from whom you acquired the program, provided that it states the license charge

unit (the characteristics of intended use of the program; for example, number of processors, number of users) and quantity acquired.

The program, when downloaded from a website, contains the applicable IBM license agreement and License Information, if appropriate, which will be presented for acceptance at the time of installation of the program. For future reference, the license and License Information will be stored in a directory such as LICENSE.TXT.

Supplies

None

Security, auditability, and control

The products in this announcement use the security and auditability features of the operating system software.

The customer is responsible for evaluation, selection, and implementation of security features, administrative procedures, and appropriate controls in application systems and communications facilities.

Global Technology Services

Contact your IBM representative for the list of selected services available in your country, either as standard or customized offerings, for the efficient installation, implementation, and/or integration of this product.

IBM Electronic Services

IBM has transformed its delivery of hardware and software support services to help you achieve higher system availability. Electronic Services is a web-enabled solution that offers an exclusive, no-additional-charge enhancement to the service and support available for IBM servers. These services are designed to provide the opportunity for greater system availability with faster problem resolution and preemptive monitoring. Electronic Services comprises two separate, but complementary, elements: Electronic Services news page and Electronic Services Agent.

The Electronic Services news page is a single Internet entry point that replaces the multiple entry points traditionally used to access IBM Internet services and support. The news page enables you to gain easier access to IBM resources for assistance in resolving technical problems.

The Electronic Service Agent™ is no-additional-charge software that resides on your server. It monitors events and transmits system inventory information to IBM on a periodic, client-defined timetable. The Electronic Service Agent automatically reports hardware problems to IBM . Early knowledge about potential problems enables IBM to deliver proactive service that may result in higher system availability and performance. In addition, information collected through the Service Agent is made available to IBM service support representatives when they help answer your questions or diagnose problems. Installation and use of IBM Electronic Service Agent for problem reporting enables IBM to provide better support and service for your IBM server.

To learn how Electronic Services can work for you, visit

http://www.ibm.com/support/electronic

Terms and conditions

IBM Direct terms and conditions

IBM Platform HPC for System x V3.2

This product is available under the terms and conditions of the IBM International Program License Agreement (IPLA). Registration is required in Passport Advantage Express in order to acquire the product and register for Subscription and Support entitlement. Proofs of Entitlement (PoE) are required for all authorized use.

IBM Global Financing	Yes
Field Installable Features	Yes
Customer Setup	Yes
Model Conversions	No
Product Availability Status	New

IBM warrants that the program will conform at the date of shipment to the current specifications, provided that the program is properly used in the specified operating environment.

If you believe there is a defect in a program such that it does not meet its specifications, you must notify IBM while program services are available for the program.

Note: IBM programs are licensed under the terms and conditions of the IBM International Program License Agreement. Proofs of Entitlement (PoE) are required for all authorized use.

Features and options only

Field Installable	Yes
Customer Setup	Yes
Support Period	Program Services will be available for a minimum of three years. A formal withdrawal will be issued one year prior to end of Program Services.
Optional Upgrade	No
Licensed Programs	Yes

Licensing

IBM International Program License Agreement including the License Information document and Proof of Entitlement (PoE) govern your use of the program. PoEs are required for all authorized use.

This software license includes Software Subscription and Support (also referred to as Software Maintenance). These programs are licensed under the IBM Program License Agreement (IPLA). IBM includes one year of Software Subscription and Support (also referred to as Software Maintenance) with the initial license acquisition of each program acquired. A three-year Subscription and Support offering is also available.

License Information form number

L-VASN-8SUQLA

The program's License Information will be available for review on the IBM Software License Agreement website

http://www.ibm.com/software/sla/sladb.nsf

Usage restrictions: None

Development/demo discount: Up to 100%. Contact your local IBM Business Partner Office for details on participation (local limitations, if any, prevail).

Hardware warranty period

Optional features - One year

Field-installable features

Yes

Model conversions

No

Machine installation

Customer setup. Customers are responsible for installation according to the instructions IBM provides with the machine.

Licensed Internal Code and Licensed Machine Code

This product does not contain Licensed Internal Code or Licensed Machine Code.

Pricing

For all local charges, contact your IBM representative.

IBM Global Financing

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Financing solutions from IBM Global Financing can help you stretch your budget and affordably acquire the new product. But beyond the initial acquisition, our end-to-end approach to IT management can also help keep your technologies current, reduce costs, minimize risk, and preserve your ability to make flexible equipment decisions throughout the entire technology life cycle.

Announcement countries

All European, Middle Eastern, and African countries except Iran, Sudan, and Syria.

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